

A Bee-Collecting Trip Across the Plains (Hym. : Apoidea, Sphecoidea).

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Dr. Frank E. Lutz had spent the summer in Colorado, collecting and observing insects, and was returning home in the American Museum car during the latter half of August. As he had no companion, he kindly invited me to go as far as Lincoln, Nebraska, in order to investigate the bee-fauna along the route. I was glad to accept, as I had never collected far out on the plains, with the exception of a few hours at Sterling years ago. Dr. Lutz himself had demonstrated in former years that the bee-fauna of the eastern part of Colorado was rich in species not observed in the mountains, many of them extending northward from New Mexico or Texas. The visitor who comes out in the summer naturally collects in the higher elevations, with the result that the plains fauna remains comparatively unknown.

According to existing records, Colorado has 697 species of bees, and in addition a considerable series of forms treated as varieties or races. Certainly no other state has so large a list, but California may prove to possess more species than Colorado when it has been thoroughly explored. The Colorado list will be eventually reduced by a certain amount of synonymy, principally resulting from the matching of sexes described as different species. This reduction will, however, probably fail to balance the additions which are even yet being made at frequent intervals. It was a striking demonstration of the imperfection of our knowledge when during the past summer Mr. L. O. Jackson found *Macropis morsei* Rob. in numbers a short distance east of Boulder, adding a family (Ctenoplectridae) to the Colorado fauna.

Dr. Lutz and the writer are collecting data on the Colorado bees, and hope in due course to issue a manual or monograph which will enable the student to determine his species. Few insects are more interesting to collect and study, but at present it is practically impossible for the beginner to determine many of his species. He cannot do it efficiently even if he has access

to a good named collection, because in several genera the characters are likely to be overlooked unless special attention is drawn to them, quite distinct species being superficially almost alike. The genera, on the other hand, are usually to be recognized without much difficulty, although eminent authorities have not infrequently described species in the wrong genus.

We started from Boulder on Aug. 15, and made the first stop near Canfield, in Boulder County, alt. 5,052 feet. Collections were made at the same place from two species of plants.

(1). On *Peritoma serrulatum*.—*Bombus fervidus* Fab., *Spinoliella australior* Ckll. ♀ (one had no light median stripe on clypeus), *Perdita zebra* Cress. ♂, ♀, *Tetraloniella excurrens* Ckll. ♀ (genus and species new to Colo.), *Anthophora occidentalis* Cress. ♀

(2.) On *Grindelia decumbens*.—*Nomia bakeri* Ckll. ♀ (abundant), *Melissodes agilis subagilis* Ckll. ♂, *Halictus pectoraloides* Ckll. ♀ (new to Colo.; antennae much darker than usual).

The two additions to the fauna were known from New Mexico.

At noon we were at Wiggins, Morgan County. It was extremely hot and dusty, and the dry season had resulted in the failure of most of the crops from here on to the eastern border of the state. A small collection at Wiggins from *Peritoma serrulatum* consisted of *Megachile brevis* Say, ♀, *Spinoliella australior* Ckll. ♀, and *Perdita zebra* Cress., ♂, ♀. *

About six miles east of Wiggins we found the small sunflower *Helianthus petiolaris* in quantity. It is not nearly so attractive to bees as the large species, and I was led to wonder whether it might differ from that in being self-fertile. This was also suggested by the failure to find hybrids, although the two readily hybridize when crossed by hand in the garden. Nevertheless, what *H. petiolaris* lacked in the quantity of its visitors, it made up in quality, as we got the following:

Tricpeolus cyclurus n. sp., *Andrena pulchella* Rob. ♂ (new to Colo.), *Perdita laticincta* Swenk & Ckll. ♂ (new to Colo.) and *Halictus*

*Mr. S. A. Rohwer has kindly identified two wasps I obtained, and the records are of some interest. *Larrapsis conferta* (Fox) ♂. At flowers of *Peritoma serrulatum*, Wiggins, Aug. 15. New to U. S. N. M. *Tachysphex propinquus* Vie. Six miles east of Wiggins, Aug. 15, dragging its prey, which Mr. Caudell identifies as *Phlibostroma quadrimaculatum* var. *pictum* Scudd.

pruiniformis Crawford. ♀. Viereck has published a new name for *Andrena pulchella*, but according to my understanding of the matter, this is not necessary.

In the evening we put up at the auto camp at Fort Morgan, 4,338 ft., and before sunset I captured males of *Melissodes agilis aurigena* Cress. at *Helianthus annuus lenticularis*. The next day, Aug. 16, we found quantities of *Helianthus petiolaris* about 7½ miles west of Xenia, and collected from the flowers *Andrena haynesi* Vier. & Ckll., ♀ (new to Colo.), *Halictus pruiniformis* Crawford., ♀, *Panurginus leucopterus* n. sp., *Perdita laticincta* Swenk & Ckll., ♂, and *P. lacteipennis* Swenk & Ckll., ♂. The *Andrena* was described from Nebraska.

Wray, reached at noon, was a disappointment. In a former year Dr. Lutz had collected a very fine and interesting series of bees here, but although there were plenty of flowers, I only got a ♀ *Melissodes confusiformis* Ckll., visiting *Helianthus annuus lenticularis*. The reason was an exceedingly hot dry wind, blowing from the south. The butterfly *Nathalis iole* was seen. We accordingly went on into Nebraska, and near Sanborn, a short distance over the line, Dr. Lutz picked up our first specimen of the so-called Colorado potato beetle, *Leptinotarsa decemlineata*. Later, at Oxford, Nebr., it was found on the traditional food-plant, *Solanum rostratum*. We camped at Benkelman, Nebr., close to the race-course. There were few flowers, but early next morning, while Dr. Lutz was ministering to the machine, I collected successfully as follows:

(1.) On *Helianthus annuus lenticularis*.—*Bombus americanorum* Fabr., worker (it was seen to go first to prickly lettuce, then to sunflower), *Halictus armaticeps* Cress. ♀, *Panurginus stigmatis* Swenk & Ckll. ♀, ♂ (form with nervures paler than in type), *Perdita albipennis* Cress. ♀, *P. lacteipennis* Swenk & Ckll. ♀.

(2.) On *Peritoma serrulatum*.—*Halictus politissimus* Ckll. ♀ (new to Nebr., described from Texas), *H. tegularis* Rob. ♀, *H. pruinus* Rob. ♀, *H. pruiniformis* Crawford. ♀. It seems probable that the original range of certain plants may be determined by the presence of oligotropic bees. The absence of *Perdita zebrata* on the *Peritoma* at Benkelman suggests that the plant may have spread out of its range as a weed. It was extremely interesting to note that the species of *Halictus* (subg. *Chloralictus*) had completely taken the place of the *Perdita*, climbing the long stamens and collecting the green pollen in

exactly the same manner. The species principally concerned in this, and very abundant, was *H. tegularis* Rob., described from Illinois, but known to extend westward. Possibly the competition of the *Halictus* was the true cause of the absence of *Perdita*.

After traveling over some very bad roads, we camped at Oxford, Nebr., early enough to do some collecting.

Halictus sparsus Rob. (described from Illinois) was taken on *Solanum rostratum*, and the following occurred on *Helianthus annuus lenticularis*: *Agapostemon texanus* Cress. ♂, *Melissodes agilis aurigena* Cress. ♂, ♀, *Tripcolus helianthi* Rob. ♂, ♀, *Perdita albipennis* Cress. ♂.

The last collecting was done the next day, Aug. 18, at Friend, Nebr., a place which lives up to its name, providing excellent accommodations. The following were all at *Helianthus annuus lenticularis*:

Bombus americanorum Fabr., *Melissodes agilis aurigena* Cress. ♂, *M. obliqua* Say. ♂ (much worn), *Tripcolus helianthi* Rob. ♂, *T. remigatus* Fabr. ♀, *Megachile parallela* Sm. ♀ (form with hair of head and sides of thorax yellowish). This is an eastern (or Mississippi valley) series of bees, and the character of the fauna was further emphasized by finding on the sunflowers numbers of the green beetle *Diabrotica longicornis* Say, which we do not find in Colorado. We also saw a Baltimore Oriole.

Arriving at Lincoln, I had my first sight of the very rich bee-collection of the University of Nebraska, and was surprised to find that there were still many species in Professor Bruner's Argentine series which I had not studied. Professor Swenk's materials of *Colletes*, including many specimens borrowed from various people and institutions, constitute the largest assemblage of this genus in the country, and it is greatly to be hoped that he will shortly continue his excellent publications on the genus. I was much pleased to meet Mr. R. W. Dawson, and to hear all about his wonderful work on *Serica*. Dr. Lutz hastened on eastward, while I spent the night in the hospitable home of Professor and Mrs. Swenk, returning to Colorado by train the following day.

The results of the trip are not extraordinary, for our day and generation, but the time will come when the story will be read with something of the feeling I had when Dr. Coues described to me the early work in Arizona, when one "shot a new bird before breakfast each morning."

The new species described below are in the writer's collection.

Panurginus leucopterus n. sp.

♂. Length about 5.5 mm., but the abdomen is curved like the letter J; slender, black, with scanty white hair, the face not conspicuously hairy; eyes black; face below level of antennae very pale yellow; supraclypeal mark quadrate, broader than long; lateral face marks ending at right angles to orbits, but presenting a rounded extension or lobe below the antennae; process of labrum and large mark on mandibles yellowish-white; process of labrum with strongly converging concave sides, the apex distinctly emarginate; clypeus with strong punctures, and no median groove; antennae long, entirely black; mesothorax shining, but well punctured; base of metathorax rugulose, with a broad, somewhat lustrous rim; tegulae piceous; wings milky hyaline; stigma large, rather dilute brown, the costa before it white; nervures colorless; basal nervure falling considerably short of nervulus; first recurrent joining second submarginal cell about twice as far from base as second recurrent from apex; legs black with small light spot on knees, anterior tibiae yellow in front, tarsi pale yellow, the last three joints black except anterior pair; abdomen shining, finely punctured, except the usual smooth parts.

About $7\frac{1}{2}$ miles west of Xenia, Colorado, Aug. 16, at flowers of *Helianthus petiolaris*, 6 ♂. In my key in Amer. Museum Novitates, No. 36, this runs to *P. piercei*, Crawf., which is considerably larger and has dusky wings. By the milky wings it resembles *P. lactipennis* Friese, from Russia. The process of labrum is rather like that of *P. labrosiformis distractus* Ckll., but there is little resemblance otherwise.

Triepeolus cyclurus n. sp.

♀ Length about 10 mm.; black, the pubescent ornaments very pale yellowish, on ventral surface white; labrum, clypeus, antennae (except third joint red on outer side), scutellum and axillae black; mandibles mainly red; legs bright ferruginous, with black spurs; tegulae clear ferruginous; wings with apical margin broadly dusky, stigma and nervures black. Eyes purplish-grey; clypeus dullish, minutely granular; mesothorax with pale border at sides and behind, but not in front; a pair of broad discal stripes, pointed at each end, not quite reaching anterior margin; scutellum bigibbous; axillary spines well-developed; basal area of metathorax tensely hairy; inner side of hind basitarsi with very pale orange hair; pleura with a large space partly free from hair, dull and densely granular; abdominal markings sharply defined; first segment with a black area on each side, shaped like a bird's head, and a very broad transverse black band, subtruncate at each end, its

upper side straight and not interrupted, but the posterior pale band interrupted in middle; segments 2 to 4 with entire bands, that on 2 with a large hook-shaped extension (pointing mesad) on each side above, and at extreme sides an angular lobe; venter with white bands, that on fourth segment interrupted; pygidial area circular, shining; last ventral segment curved downward at end.

Six miles east of Wiggins, Colorado, Aug. 15, at flowers of *Helianthus petiolaris*, 1 ♀. By the curved last ventral segment this resembles the much larger and otherwise different *T. concavus* Cress. and *T. penicilliferus* Brues. In the key in Amer. Mus. Novitates, No. 23, it runs to *T. laticaudus* Ckll., which is not closely allied.

***Tetraloniella excurrens* (Ckll.).**

The female from near Canfield is evidently conspecific with the type from Roswell, New Mexico; in my table in Trans. Am. Ent. Soc., xxxii, it runs nearest to *Melissodes spissa* Cress., but is easily separated by the dark tegulae and other characters. It should be noted that the clypeus is hairy all over, except a narrow line in middle, there is a fulvous tuft at tip of labrum, and the bare posterior part of first abdominal segment is extended anteriorly on each side by a rounded area.

The form *verbesinarum* (Ckll.), which I have treated as a synonym of *excurrens*, may stand as a subspecies, *T. excurrens verbesinarum*. It differs by the narrower bands on the third and fourth abdominal segments, that on the third lacking the basal thinner portion. This is probably not an individual peculiarity. The genus *Xenoglossodes*, to which the species has been referred, is a synonym of *Tetraloniella* Ashmead.

A New *Peritropis* from the Eastern United States (Heteroptera-Miridae).¹

By HARRY H. KNIGHT, University of Minnesota, St. Paul.

***Peritropis husseyi* new species.**

Brownish black, dorsum alutaceous and rather closely spotted with pale; basal margin of pronotum broadly sulcate in outline, rounding laterally to the basal angles, devoid of tubercles, practically transverse

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